

Appl. No. : 10/800,391
Filed : March 12, 2004

REMARKS/ARGUMENTS

In the outstanding Office Action, the Examiner has rejected Claims 1-13. Reconsideration and allowance of all Claims 1-13 in light of the present remarks is respectfully requested.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-13 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,688,803 to Marie Van Giezen, et al. in view of U.S. Patent No. 4,321,068 to Cottrell, et al.

The Examiner states that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the periphery of each receiving opening of Maria Van Giezen, et al. to protrude inwards into the tube to define a collar surrounding the second element so as to provide a frictional fit of the two elements in order to increase the area around the openings engaged by the second element hence providing a more structurally sound grid structure.” The prior art, however, does not teach a “more structurally sound grid structure.” In fact, the stated objectives of Cottrell, et al are to decrease the expense of production of mast discharge electrodes and to avoid weakening of the mast discharge electrodes’ wires due to welding. Column 1, Lines 21-26. The art does teach “increas[ing] the area round [sic] the hole engaged by the cross member and [taking] advantage of the natural “C” spring formed by the material.” Column 1, Line 68 - Column 2, Line 2. However, this increase in contact area is only taught to be beneficial in that it provides a stronger frictional attachment thereby eliminating the need for welding the elements together.

Because the grid structure contemplated by Claim 1 is comprised of different materials from those of the wires in Cottrell, its cross members are not weakened by welding. In fact, the grid in the Van Giezen was welded together and did not suffer from such weakening. The problem discovered by the inventors was not a generally weak structure as in the Cottrell, but instead was in inability of the previous grid structure to withstand mechanical shocks during drop tests. In creating the grids of Claim 1, the inventor discovered the source of this problem. The inventor determined that the “knife-edges” created by drilling holes in the first elongate elements made the second elongate elements more likely to break when subjected to mechanical stress.

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This occurred because the second elongate elements when pushed against the first elongate elements would be bent at sharp angles by those "knife-edges." The inventor then took the further inventive step of creating collars in the first elongate elements to solve that "knife-edge" problem. Specification Pages 9-10.

It has been established that an inventor can meet the nonobviousness requirement of § 103 by discovering the source of a problem. "A patentable invention, within the ambit of 35 U.S.C. § 103, may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use.... It should not be necessary for this court to point out that a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified." *In re Spinnoble*, 56 C.C.P.A. 823, 405 F.2d 578. The present invention is not obvious over U.S. Patent No. 6,688,803 to Marie Van Giezen, et al. in view of U.S. Patent No. 4,321,068 to Cottrell, et al for at least the further reason that the applicant discovered the non-obvious source of the problem in order to invent a solution thereto.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art references, when combined, must teach or suggest all the claim limitations. M.P.E.P. § 2143. Also, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Furthermore, a result which is greater than that contemplated by the prior art is sufficient to establish nonobviousness. *In re Corkill*, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985). ("A greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness ... of the claims at issue.")

The Cottrell patent teaches using collars to avoid damage due to welding and to reduce costs. However, the prior art does not contemplate the increase in structural strength to be made by avoiding the "knife-edge" problem. A person skilled in the art and familiar with the Van Giezen and Cottrell patents would be surprised by the magnitude of the increase in structural strength when the collars of Cottrell are combined with the structure of Van Giezen. Without hindsight, such a person would have had no reasonable expectation of success in creating a grid

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that would survive the drop tests described in the specification. Because the benefits of Cottrell combined with Van Giezen are unexpected, there is no suggestion or motivation to use the teachings of Cottrell to solve the problems of Van Giezen and Claim 1 is nonobvious.

Because they incorporate all of the limitations of the claim from which they depend, Claims 2-13 also define patentable subject matter for at least the same reasons as set forth above with respect to the independent claim from which they each depend.

CONCLUSION

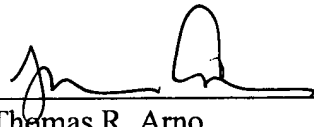
Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims for patentability purposes pursuant to statutory section 103, the reasons therefore, and arguments in support of the patentability of the pending claim set are presented above. In light of these amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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